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(71) Applicant *(for all designated States except US):* STEL-LINGSBYGG A/S [NO/NO]; Badehusgaten 2, N-4000 Stavanger (NO).

(72) Inventor; and
(75) Inventor/Applicant *(for US only) :* KRAG, Gustav [NO/NO]; Badehusgaten 2, N-4000 Stavanger (NO).

(74) Agent: A/S BERGEN PATENTKONTOR; Strandgt. 191, N-5000 Bergen (NO).

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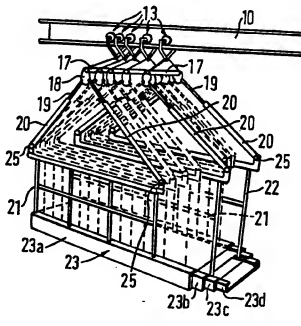
(54) Title: GANGWAY ARRANGEMENT



(57) Abstract

A gangway arrangement comprising a longitudinal bracing means (10) which forms support means for a series of gangway sections (23) having associated rail-forming side members (21, 22). The gangway sections (23) are connected to the bracing means (10) via support members (19, 20) which are displaceably mounted on the same. The support means (19, 20) are fixable in different arbitrary positions on the bracing means (10). The gangway sections (23) with associated rail-forming side members (21, 22) and support members (19, 20) are telescopically collapsible on the bracing means (10).

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GANGWAY ARRANGEMENT

The present invention relates to a gangway arrangement of the kind which is described in the introduction to the following claim 1.

Generally there is a need to provide a gangway which can be transposed in an easy manner from an inactive, stowed away condition to an active condition ready for use. The gangway can, for example, find its application between two separate building constructions on land or between two separate rig constructions at sea or between a stationary construction and a moveable construction, for example between a stationary rig and a ship at sea.

Gangway constructions are known designed as a coherent rigid construction which can be pivoted from an inactive to an active position, and vice versa, by means of a crane arrangement or the like. Such known gangway constructions usually occupy significant space in an inactive, stowed away condition.

With the present invention the aim is a solution where the gangway can occupy considerably less space in an inactive condition, but where the gangway nevertheless has sufficient ridigity and strength in a condition made ready for use.

The arrangement according to the invention is characterised by the features which are indicated in the characterised portion of claim 1 of the following claims.

By employing according to the invention gangway sections which are suspended via associated support means in a common bracing means, it is possible to transpose the gangway sections in a relatively easy manner from an inactive to an active condition and vice versa, by allowing the gangway sections to assume their inactive position in a condition telescopically pushed together. According to the invention the gangway sections can be adjusted in a correct use position along the bracing means and the gangway

constructions secured, separately, to the bracing means in a relatively simple fashion to form a gangway braced ready for use.

Further features of the invention will be evident from the following description with reference to the accompanying drawings, in which:

Fig. 1 shows an end view of the arrangement according to the invention.

Fig. 2 shows a side view of the arrangement according to the invention.

Fig. 3 shows a plan view of the arrangement according to the invention.

Fig. 4 shows a perspective view of the arrangement according to the invention, illustrated in an inactive position.

Fig. 5 shows a detailed view of a portion of the arrangement according to the invention illustrated in a vertical section.

Fig. 6 shows a detail of the portion according to Fig. 5 illustrated in side view.

Fig. 7 shows the same as in Fig. 6 illustrated in end view.

Fig. 8 shows the same as in Fig. 6 illustrated in plan view.

In the drawing there is shown an elongate support means or bracing means 10 in the form of an H beam having great strength and great rigidity. Parallel to the bracing means 10 at a suitable distance from the latter there are fixed on opposite sides of this an extra bracing means 11 and 12, respectively.

The extra bracing means 11 and 12 can have arbitrary cross-sectional forms and need not have an equally great rigidity and strength as the bracing means 10.

To the bracing means 10 there are fixed a series of combined lock and slide means 13 with their respective pairs of clamping arms 14, 15 which can

clamp the slide means 13 in place in arbitrary positions along the bracing means 10 with the help of a separate actuating means 16 for example in the form of a spanner. Further details of the slide means 13 with associated clamping arms 14, 15 and actuating means 16 are illustrated in Figs. 6-8.

To the slide means 13 there is fixed a transverse yoke member 17 which at opposite ends in an associated support plate 18 carries a pair of downwardly diverging support members in the form of rods 19, 20 which are fastened to the upper portion of framework-forming side pieces 21, 22 in an associated gangway section 23. Each support rod 19, 20 is preferably linked to the slide means 13 and to the side piece 21 (22) via pivot pins 24 and 25. In addition, each support rod is preferably in the form of an axially regulatable rod construction (tension rod construction).

Each gangway section 23 is rigidly connected to the associated side pieces 21, 22. There are shown a series of four sections 23a-23d which can be drawn telescopically together, so that the sections can assume a pushed out position as illustrated in Figs. 1-3 and can be pushed together to an inactive, pushed together position, such as illustrated in Fig. 4. It is evident from Figs. 1 and 4 that the sections 23a-23d have a gradually smaller cross-section, so that they can be drawn together in a telescopically displaceable engagement. From Fig. 5 it is evident that the sections 23a-23d are connected to each other by means of cooperating slide rails 26 and 27. The one slide rail 26 extends on the upwardly facing side of the lowermost lying section, while the other rail 27 extends on the downwardly facing side of the section lying above. The rails 26 and 27 in each pair of sections are adapted to stand in permanent engagement with each other during displacement

of the sections relative to each other. In addition, the above-lying section is supported on the lower lying section via support wheels 28 which roll directly against the upper side of the section lying below. Each section is, in addition, provided with a longitudinal bracing beam 29 of C-shaped profile and with the profile opening facing inwardly into the section. Against upper flange 29a of the beam 29 the above-lying section forms a supporting abutment via a further support wheel 30.

At the front edge of each section 23a-23d there are fastened a pair of support members 31 in the form of wire pieces to slides 32 which are mounted for ready displacement on each of their two parallel bracing means 11, 12. The wire pieces 31 diverge upwardly from the associated section to the associated bracing means, as is evident from Fig. 1. By means of the series of pairs of wires 31 and associated bracing means 11 and 12 the gangway construction can be safe-guarded in place in a centred position relative to the central bracing means 10.

The combined slide means and lock means 13 which is illustrated in detail in Figs. 6-8 consists of two clamping arms 14 and 15 which are connected to each other via a pivot pin 35. At the central portion of the clamping arm 14 it is flexibly coupled to the one end of a regulating screw 36. The corresponding central portion of the clamping arm 15 supports pivotably mounted about a pivot pin 37 a nut 38 which is axially regulatable along the screw 36. The screw 36 is designed with a socket portion 39 for the reception of the separate actuating member 16 for adjusting the clamping arms 14 and 15 relative to each other. Upper ends of the clamping arms 14 and 15 support a support wheel 41 which is adapted to support itself against lower horizontal flanges 10a of the bracing means 10. By means of clamping plates 42 and 43 on the upper

end of the respective clamping arm the slide and lock means 13 can be clamped in place in the locking position on the bracing means in an arbitrary position along the latter via the vertical central web 10b of the H beam.

CLAIMS:

1. Gangway arrangement, comprising one or more longitudinal bracing means (10-12) which form support means for a series of gangway sections (23) with associated rail-forming side members (21, 22), characterised in that the gangway sections (23) are connected to the bracing means (10) or the one of the bracing means (10-12) via support means (19, 20, 31) which are displaceably mounted on the same, and that the support means (19, 20, 31) are securable in different arbitrary positions on the associated bracing means (10), and that the gangway sections (23) with associated rail-forming side members (21, 22) and support members (19, 20, 31) are telescopically collapsible on the associated bracing means (10).

2. Arrangement in accordance with claim 1, characterised in that each gangway section is suspended in the associated bracing means (10) via a combined slide and lock means (13) which permits displaceable adjustment of the gangway sections for respective securing of the gangway sections at different positions along the bracing means (10).

3. Arrangement in accordance with claim 1 or 2, characterised in that each gangway section (23) at each side member (21, 22) is connected to a yoke member (17) extending transversely relative to the bracing means (10) via two downwardly converging support members, preferably in the form of rods (19, 20) having a regulatable length, extending in the longitudinal direction of the gangway.

4. Arrangement in accordance with one of the

claims 1-3, characterised in that each gangway section (23) is connected to an associated bracing means (11, 12) on opposite sides of a central bracing means (10) via upwardly diverging, sway-preventing wire pieces (31) which are slidably displaceable along the associated bracing means (11, 12).

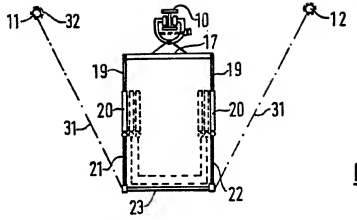

FIG.1

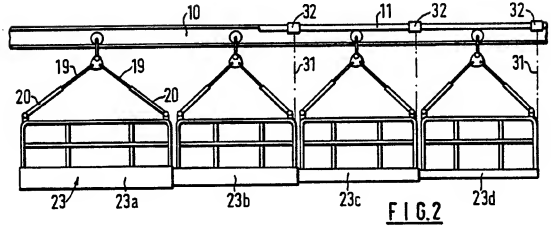

FIG.2

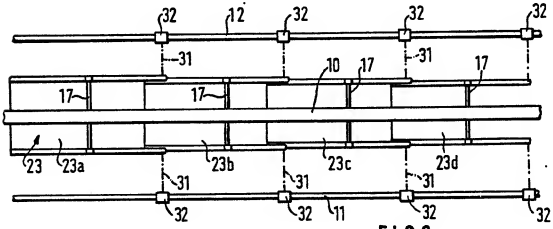

FIG.3

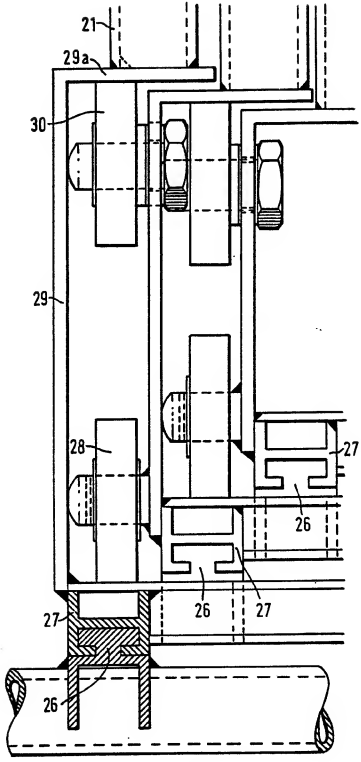

FIG.5

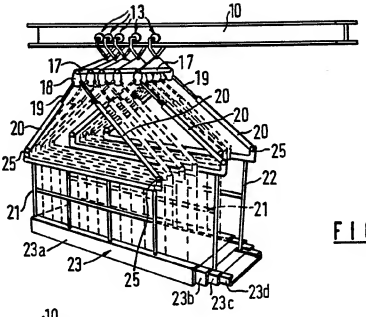

FIG.4

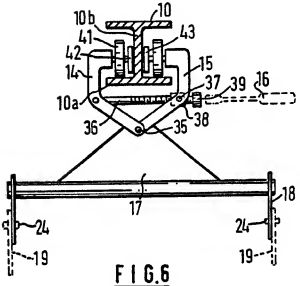

FIG.6

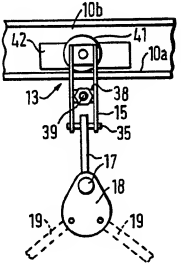

FIG.7

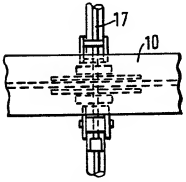

FIG.8

INTERNATIONAL SEARCH REPORT

International Application No PCT/N084/00041

I CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) [3]

According to International Patent Classification (IPC) or to both National Classification and IPC 3

E 01 D 15/14 // B 63 B 27/14; B 65 G 69/28

II. FIELDS SEARCHED

Classification System	Minimum Documentation Searched [4] Classification Symbols
IPC 3	E 01 D 15/00, 06-14, 19/10; B 63 B 27/14; B 64 F 1/30, 305, 32; B 65 G 69/28; E 04 G 3/00-16 .../...

Documentation Searched other than Minimum Documentation to the Extent that such Documents are included in the Fields Searched [5]

SE, NO, DK, FI classes as above

III. DOCUMENTS CONSIDERED TO BE RELEVANT [14]

Category *	Citation of Document, [16] with indication, where appropriate, of the relevant passages [17]	Relevant to Claim No. [18]
A	SE, B, 305 734 (L.O. FRANSSON D. BARTUSCH) 4 October 1968	1-4
X	GB, A, 1 099 271 (WOLLARD AIRECRAFT SERVICE EQUIPMENT INC) 17 January 1968	1-4
X	US, A, 3 310 823 (L.L. PREISS) 28 March 1967	1-4
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* Special categories of cited documents: [15]

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

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IV. CERTIFICATION

Date of the Actual Completion of the International Search [2]	Date of Mailing of this International Search Report [2]
1984-12-04	1984 -12- 10
International Searching Authority [1]	Signature of Authorized Officer [20]
Swedish Patent Office	Vilho Juvonen

Form PCT/ISA/210 (second sheet) (October 1981)

FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

II Fields searched (cont)

US Cl 14: 17, 18, 19. 71.5

V. ☐ OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE [10]

This international search report has not been established in respect of certain claims under Article 17(2) (a) for the following reasons:

1. ☐ Claim numbers ....., because they relate to subject matter [12] not required to be searched by this Authority, namely:

2. ☐ Claim numbers....., because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out [13], specifically:

VI. ☐ OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING [11]

This International Searching Authority found multiple inventions in this international application as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application.

2. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:

3. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim numbers:

4. ☐ As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

Remark on Protest

☐ The additional search fees were accompanied by applicant's protest.

☐ No protest accompanied the payment of additional search fees.